

DIRECTIONS

Evaluate the student by checking the appropriate box to indicate the degree of competency. The rating for each competency should reflect **employability readiness** rather than the grades given in class.

Rating Scale:

0 No Exposure

1 Introduced – The student has been exposed through non-participation instruction (e. g., lecture, demonstration, field trip, video).

2 Practiced – The student can perform the task with direct supervision.

3 Entry-level Competency – The student can perform the task with limited supervision and/or does not perform the task to standard (a typical entry-level performance expectation)

4 Competency – The student consistently performs task to standard with no supervision (on at least two occasions or at instructor's option)

HEAVY EQUIPMENT

47.0302

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A.

SAFETY

- *A. 1 Demonstrate knowledge of hazardous materials, the right to know laws, and how to obtain and use MSDS sheets.
- *A. 2 Demonstrate knowledge of the 1-800-DIG-SAFE system.
- *A. 3 Demonstrate knowledge of CPR and Basic First Aid.
- *A. 4 Use appropriate flags and tags.
- *A. 5 Use and understand warning tapes in trenches.
- *A. 6 Use sign packages.
- *A. 7 Demonstrate knowledge of types and uses of fencing.
- *A. 8 Demonstrate understanding of the basic considerations of health (wellness) and preventative medicine.
- *A. 9 Use hard hats, work shoes, and other appropriate safety clothing.

- *A.10 Demonstrate how and when to use a respirator.
- *A. 11 Demonstrate how and when to use hearing protection.
- *A. 12 Demonstrate how to control traffic on/near a work site.
- *A. 13 Demonstrate how to lift and climb properly.
- *A. 14 Demonstrate successful completion of an OSHA awareness unit.
- *A. 15 Demonstrate knowledge of motor carrier safety regulations (U.S. D.O.T.)

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- *B. 1 Demonstrate development of a work ethic.
- *B. 2 Demonstrate development of a work attitude.
- *B. 3 Demonstrate understanding of what makes a good working environment.
- *B. 4 Demonstrate understanding of the basic principles of conflict management.
- *B. 5 Demonstrate knowledge of how to deal with differences among people.
- *B. 6 Demonstrate sex equity awareness.
- *B. 7 Demonstrate knowledge of how to communicate, both in written and oral form.
- *B. 8 Demonstrate knowledge of how to deal with the public.

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- *C. 1 Perform duties of a mechanics's helper.
- *C. 2 Perform basic welding, cutting, and hard surfacing operations.
- *C. 3 Use high pressure air tools safely/appropriately.
- *C. 4 Properly identify and use fuels, lubricants, and related fluids.

- *C. 5 Demonstrate proper jacking and blocking methods.
- *C. 6 Demonstrate knowledge of the proper application and use of fire extinguishers of different types.

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- *D. 1 Demonstrates general knowledge of equipment operations.

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- *E. 1 Read and use views of site, architectural, structural, mechanical, and electrical drawings and specifications: plan views, elevations, details sections, and plans.
- *E. 2 Read and use site, architectural, structural, mechanical, and electrical conventions: title boxes, scales symbols, notations, abbreviations, terminology and material details.
- *E. 3 Use a calculator to find: square footage, cubic feet, cubic yards, area, volumes, elevations, square root, weight, lineal feet, and other mathematical operations as stated on the Applied Mathematics Content List (attached).
- *E. 4 Demonstrate proper operation of a transit.
- *E. 5 Establish footing grades.
- *E. 6 Explain the proper procedures for filling operations around foundation walls.
- *E. 7 Demonstrate knowledge of drainage preparation (negative grade).
- *E. 8 Establish elevation reference points from a benchmark.
- *E. 9 Explain the proper procedures for supervising the excavation of a building site, including knowledge of the 1-800-DIG-SAFE program.
- *E. 10 Describe the basic principles of “state specification” road design.

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F. VIBRATORY COMPACTOR OPERATION AND MAINTENANCE

- *F. 1 Demonstrate understanding of the capabilities, limitations, and proper uses of the vibratory compactor.
- *F. 2 Compact material to specified compaction.
- *F. 3 Use the vibratory compactor as a demonstration model for learning the “feel” and operation of other types of machines, to the satisfaction of the supervisor.
- *F. 4 Demonstrate alertness at all times while operating the equipment.
- *F. 5 Demonstrate start up and shut down procedures as provided in the operator’s manual supplied by the manufacturer.
- *F. 6 Demonstrate basic maneuvering of the machine, on and off the work site.
- *F. 7 Demonstrate loading and unloading the machine on various types of hauling equipment under varying weather and terrain conditions.
- *F. 8 Perform daily and seasonal maintenance of the vibratory compactor in accordance with the manufacturer’s recommendations.
- *F. 9 Demonstrate understanding of and compliance with “company policy” regarding use and maintenance of the vibratory compactor.
- *F. 10 Perform proper visual inspection on the vibratory compactor.

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G. ROAD GRADER OPERATION AND MAINTENANCE

- *G. 1 Demonstrate understanding of the capabilities, limitations and proper uses of the road grader.
- *G. 2 Scarify ground surface to specifications.
- *G. 3 Level and contain gravel.
- *G. 4 Perform coarse grading.
- *G. 5 Slope surface to a point.

- *G. 6 Perform shoulder work to specifications.
- *G. 7 Remove snow to supervisor's satisfaction.
- *G. 8 Operate a hydraulically controlled machine to supervisor's satisfaction.
- *G. 9 Perform daily and seasonal maintenance of the road grader in accordance with the manufacturer's recommendations.
- *G. 10 Demonstrate understanding of and compliance with "company policy" regarding use and maintenance of the road grader.
- *G. 11 Perform a proper visual inspection of the road grader.

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H. BACKHOE/LOADER OPERATION AND MAINTENANCE

- *H. 1 Demonstrate understanding of the capabilities, limitations, and proper uses of the backhoe/loader.
- *H. 2 Operate a machine on the scale or size category of a 410 John Deere, or a 580 Case, equipped with "wrist a twist".
- *H. 3 Install and remove tanks with the backhoe/loader.
- *H. 4 Excavate to find a water leak in a buried pipe.
- *H. 5 Dig around utilities using the backhoe/loader.
- *H. 6 Dig a test hole using the backhoe/loader.
- *H. 7 Move materials on site using the backhoe/loader.
- *H. 8 Demonstrate the procedure to extricate the backhoe/loader from mud or other obstructions.
- *H. 9 Operate a machine with SAE controls.
- *H. 10 Dig to specific line and grade using the backhoe/loader.
- *H. 11 Perform daily and seasonal backhoe/loader maintenance in accordance with the manufacturer's recommendations.
- *H. 12 Demonstrate understanding of and compliance with "company policy" regarding use and maintenance of the backhoe/loader.

*H. 13 Perform proper visual inspection of the backhoe/loader.

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I. FRONT-END LOADER OPERATION AND MAINTENANCE

- *I. 1 Demonstrate understanding of the capabilities, limitations, and proper uses of the machine.
- *I. 2 Load trucks with the front-end bucket loader.
- *I. 3 Move material on-site using the front-end bucket loader.
- *I. 4 Backfill trenches using the front-end bucket loader.
- *I. 5 Move snow using the front-end bucket loader.
- *I. 6 Use the front-end bucket loader for fork lifting, with appropriate tines.
- *I. 7 Operate an articulated machine (front-end bucket loader).
- *I. 8 Attach and remove adapters from the front-end bucket loader.
- *I. 9 Perform daily and seasonal front-end bucket loader maintenance in accordance with the manufacturer’s recommendations.
- *I. 10 Demonstrate understanding of and compliance with “company policy” regarding use and maintenance of the front-end bucket loader.
- *I. 11 Perform a proper visual inspection of the front-end bucket loader.

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J. BULLDOZER OPERATION AND MAINTENANCE

- *J. 1 Demonstrate understanding of the capabilities, limitations, and proper uses of the bulldozer.
- *J. 2 Operate bulldozers in the 450/D3 size class, or the nine ton range.
- *J. 3 Operate machines in the large size D6/D7 class. (If unable to train on two sizes of machines, training on the larger size is preferable.)
- *J. 4 Operate the hydrostatically controlled foot-steer system controls.

- *J. 5 Operate the hydrostatically controlled hand-steer system controls.
- *J. 6 Perform stump and tree removal with a bulldozer.
- *J. 7 Perform rough grading with a bulldozer.
- *J. 8 Perform sub-grading with a bulldozer.
- *J. 9 Tow other equipment properly with a bulldozer.
- *J. 10 Perform daily and seasonal bulldozer maintenance in accordance with the manufacturer's recommendations.
- *J. 11 Demonstrate understanding of and compliance with "company policy" regarding use and maintenance of the bulldozer.
- *J. 12 Perform a proper visual inspection of the bulldozer.
- *J. 13 Clean bulldozer tracks.
- *J. 14 Check bulldozer pin wear.
- *J. 15 Check bulldozer track wear.
- *J. 16 Check bulldozer pad wear.
- *J. 17 Cover or put a metal can over the bulldozer exhaust stack.

“ “ “ “ “ **K. TRACK EXCAVATOR OPERATION AND MAINTENANCE**

- *K. 1 Demonstrate understanding of the capabilities, limitations, and proper uses of the track excavator.
- *K. 2 Operate a machine the size class of a $\frac{3}{4}$ ton to 1 yard unit.
(Example: John Deere 950).
- *K. 3 Demonstrate understanding of the proper applications for the track excavator.
- *K. 4 Operate a track excavator equipped with SAE controls.
- *K. 5 Excavate with a track excavator.
- *K. 6 Trench with a track excavator.

- *K. 7 Load trucks properly with a track excavator.
- *K. 8 Move rock with a track excavator.
- *K. 9 Perform sub-grading operations with a track excavator.
- *K. 10 Perform finish grading operations with a track excavator.
- *K. 11 Perform daily and seasonal track excavator maintenance in accordance with the manufacturer's recommendations.
- *K. 12 Demonstrate understanding of and compliance with "company policy" regarding the use and maintenance of the track excavator.
- *K. 13 Perform a proper visual inspection of a track excavator.
- *K. 14 Clean track excavator tracks.
- *K. 15 Check track excavator pin wear.
- *K. 16 Check track excavator track wear.
- *K. 17 Check track excavator pads.
- *K. 18 Cover or put a metal can over the track excavator exhaust stack.

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- *L. 1 Demonstrate understanding of the capabilities, limitations, and proper uses of the dump truck.
- *L. 2 Operate a ten-wheeler equipped with a heated dump body, trailer hitch, air brakes, engine brake, and air-operated tailgate.
- *L. 3 Operate a light duty six-wheeler with a dump body.
- *L. 4 Operate a dump body properly.
- *L. 5 Operate a dump truck under off-road and on-road conditions.
- *L. 6 Load the dump truck properly, including covering the load and cleaning spillage.
- *L. 7 Demonstrate the procedures for weighing a load.

- *L. 8 Maneuver the dump truck into a loading zone.
- *L. 9 Dump and spread a load.
- *L. 10 Attach and pull a trailer with a dump truck.
- *L. 11 Move equipment with the dump truck and a tag trailer.
- *L. 12 Demonstrate knowledge of the weight and load specifications of the dump truck.
- *L. 13 Perform daily and seasonal dump truck maintenance in accordance with the manufacturer's recommendations.
- *L. 14 Demonstrate understanding of and compliance with "company policy" regarding use and maintenance of the machine.
- *L. 15 Perform proper visual inspection of the dump truck.

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- *M. 1 Demonstrate understanding of the capabilities, limitations, and proper uses of the tag trailer.
- *M. 2 Demonstrate operation of the tag trailer at safe operating speeds.
- *M. 3 Hitch and unhitch the tag trailer.
- *M. 4 Load and unload the trailer, balancing the load properly.
- *M. 5 Operate the air brake set-up.
- *M. 6 Tie down a load properly.
- *M. 7 Demonstrate maneuvering skills (i.e., backing, turning...).
- *M. 8 Perform daily and seasonal tag trailer maintenance in accordance with the manufacturer's recommendations.
- *M. 9 Demonstrate understanding of and compliance with "company policy" regarding use and maintenance of the tag trailer.
- *M.10 Perform a proper visual inspection of the tag trailer.